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The Power of Strangers: The Effect of Incidental Consumer Brand Encounters on Brand Choice

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In the course of daily encounters with other consumers, an individual may be incidentally exposed to various brands. We refer to these situations as incidental consumer brand encounters (ICBEs). This research examines how ICBEs influence brand choice. Four studies provide evidence that repeated exposure to simulated ICBEs increases choice of the focal brand for people not aware of the brand exposure, that perceptual fluency underlies these effects, and that these effects are moderated by perceivers' automatic responses to the type of user observed with the brand.

People are exposed to brands continually in the course of everyday life not only as a result of marketing activities but also as a consequence of their daily encounters with others. Some encounters are of long duration and involve direct communication and engagement, whereas others are brief and occur only in passing (e.g., passing others while walking, seeing others on a bus). Such brief encounters, which may actually be more ubiquitous, often lead to fleeting exposure to people consuming or displaying their preferred brands. For example, students may be carrying bottles of their favorite drink as they pass each other walking to class, shoppers may catch a glimpse of another shopper's brand selections at the grocery store checkout line, or people may walk by others wearing the latest sports shoe. Even

though these encounters may be brief and lack direct interaction with the other person, they may lead to processing of information about the brand and the person using the brand. The ubiquitous and pervasive nature of these encounters means that they represent a common form of exposure to consumers and their chosen brands. Importantly, because the brand is generally not the focal point of the encounter, the exposure to the brand itself is incidental in nature, and any processing of brand information in these encounters is likely to be nonconscious. For ease of exposition, we refer to these encounters as incidental consumer brand encounters (ICBEs).

In this research, we examine how consumers may be influenced by ICBEs. For example, people may be repeatedly exposed to the same brand during the course of multiple ICBEs. On any given morning, one might pass several people with Starbucks coffee in hand. What are the effects of such repeated exposures to a brand in an ICBE context? Would the repeated exposure increase an observer's choice of that brand? In addition to information about the brand, observers are exposed to who is using the brand (e.g., gender or other characteristics of the user). Will repeated exposure to a particular type of person displaying a brand affect an observer's response toward that brand?

The current research is the first to explore the consequences of ICBEs on perceivers' own brand choice. Specifically, we examine the effects of frequency of exposure to a given brand on observers' choice of brand and consider the moderating role of characteristics of the person seen using the brand. Importantly, we focus on situations during which these effects occur via automatic processes. It is pos-

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sible that exposure to brands, registration of frequency information, and assessment of user characteristics and their subsequent effects on choice occur consciously and deliberately. However, these processes might also operate without intention or awareness on the part of the observer. Bargh (2002) and Dijksterhuis et al. (2005) argue that much of consumer behavior is the result of exposure to subtle cues in the environment that activate cognitive and affective processes without awareness or intent. We propose that people can perceive stimuli, register frequency information, and be influenced by the type of brand user automatically and hence that brand choice can be influenced by ICBEs without conscious awareness or intent. In essence, consumers act as their own implicit market researchers, registering information on frequency of brand exposure and its users and utilizing that information in making brand choices.

In the next section, we develop a theoretical framework for examining these potential effects and provide an overview of the research. This is followed by a detailed description of four studies that test our predictions. Finally, the results are summarized and contributions and implications are discussed.

THEORETICAL DEVELOPMENT

Overview

We posit that certain information cues are processed during ICBEs. First, it is expected that people automatically process the frequency of exposure information. Repeated exposure to a brand during these encounters should lead to increased fluency and a more positive response toward the brand, operationalized here as choice of that brand from a set of options. Further, it is expected that people implicitly process information about the users of a given brand during ICBEs. Exposure to a particular type of user may automatically activate the attitudes or evaluative responses the perceiver has toward those individuals (Bargh et al. 1992; Fazio et al. 1986). These automatic reactions to attitude objects serve an informational function (Chartrand, van Baaren, and Bargh 2006) and appropriately steer subsequent behavior (Schwarz and Clore 1983). Thus, the automatic evaluations of other people may moderate the positive response toward a frequently encountered brand. Importantly, our focus is on situations in which people are not consciously aware that they were exposed to a brand in ICBEs.

Encoding and Effects of Frequency Information

A fundamental premise of the current research is that people automatically process frequency of brand occurrence information during ICBEs. Hasher and Zacks (1984) suggest a largely innate mechanism that results in the inevitable encoding of certain fundamental attributes of attended events, one of which is frequency of occurrence. Because the memory system stores both concrete event information and information on event repetition (Haberstroh and Betsch 2002; Jonides and Naveh-Benjamin 1987), people should automatically encode the frequency of repeated exposure to brands in ICBEs.

In addition, in an ICBE, the brand is generally not the focus of the encounter, so the brand itself and the frequency of occurrence information may be processed without awareness by the observer (Fang, Singh, and Ahluwalia 2007; Janiszewski 1988, 1993; Shapiro, MacInnis, and Heckler 1997).

How might automatically encoded frequency information affect brand choice? There is strong evidence that mere repeated exposure to a stimulus is a sufficient condition for enhancement of one's evaluation of that stimulus (the mere exposure effect, Zajonc [1968]; for a review, see Bornstein [1989]). Processing fluency has been proposed as the underlying mechanism for the mere exposure effect. The processing fluency literature argues that the ease with which a given stimulus is processed (i.e., fluency) provides experiential information that serves as a relevant input toward evaluation of that stimulus (Schwarz 2004). The nature of that evaluation depends on the type of judgment task. For example, increased fluency has affected assessments of truth and familiarity (Whittlesea 1993), judgments of preference and beauty (Winkielman et al. 2003), and brand choice (Lee 2002).

Perceptual fluency, the subtype of processing fluency relevant to the current research, refers to the relative ease with which people can identify a stimulus on subsequent encounters (Lee and Labroo 2004). It involves the activation of a representation of a stimulus in memory (Huber and O'Reilly 2003). Since it is perceptual in nature, this type of fluency reflects the ease of processing surface features of a stimulus. Thus, any factor related to the processing of surface features, such as repetition, should affect evaluation of that stimulus.

While fluency is experiential in nature, it may or may not be reflected in conscious experience and does not require that people make explicit inferences about the meaning of fluency or make a conscious attribution to the stimulus (Winkielman et al. 2003). Conscious awareness of the stimulus itself is also not necessary to attain the positive effect of repeated exposure (Bornstein, Leone, and Galley 1987; Kunst-Wilson and Zajonc 1980). In fact, mere exposure effects appear to be stronger when people are not aware of having been exposed to the stimuli (Bornstein 1989). This is consistent with research showing that marketing stimuli processed without conscious awareness or at a shallow level of processing can result in increased favorable attitudes and affective responses toward such stimuli (Janiszewski 1993; Nordhielm 2002). In addition, correction models suggest that conscious awareness may stimulate conscious correction processes (Wegener and Petty 1995; Wilson and Brekke 1994). Conscious knowledge that a factor such as repeated exposure may enhance feelings toward a stimulus can attenuate its effects.

In sum, we predict that consumers automatically encode the frequency of their exposures to a brand during ICBEs. We expect that repeated exposure to the brand activates the brand's representation in memory and generates fluency. When given a choice among brands, a consumer will be more likely to select the fluently processed brand. This effect

should hold most strongly when people are not aware that they have been exposed to the brand.

Encoding Information on the Co-occurrence of Brand and User

Does the fact that a person is shown with the brand influence response to the brand over and above the influence of the repeated exposure? In other words, will observers also be influenced by the types of people using the brand during ICBEs? We argue that they will. We propose that an individual's response to the type of person associated with the brand can moderate the positive response from repeated exposure to the brand alone but that this will only be the case when there is a clear basis for categorization of the users into specific groups. Visual cues, including physical characteristics, may allow observers to categorize focal individuals into meaningful types (Fiske, Lin, and Neuberg 1999), such as females, teenagers, or socially constructed groups such as athletes. This process of categorizing and classifying others enables people to make sense of their social environment (Macrae and Bodenhausen 2000). Therefore, if clear discernible visual cues are present, observers should be able to encode types of users of a brand during repeated ICBEs.

Perceivers have a complex array of affective, cognitive, and behavioral responses associated with familiar types of users, and exposure to a particular type of user may automatically activate these responses (Bargh et al. 1992; Fazio et al. 1986). This automatic activation results from repeated co-activation of a perceiver response and user type over time (Anderson 1983; Baldwin 1992; Bargh and Chartrand 1999). Research on automatic attitude activation (Fazio et al. 1986) and automatic evaluation (Bargh et al. 1992) shows that people's evaluative responses toward attitude objects are automatically activated upon perceiving them. Thus, perceiving a member of a negatively evaluated group should automatically activate a negative response. Moreover, these automatic evaluations lead to the activation of approach/avoid behavioral responses (Chen and Bargh 1997). That is, people automatically approach attitude objects that they nonconsciously evaluate as positive, and they automatically avoid those that they nonconsciously evaluate as negative (Cacioppo, Gardner, and Berntson 1999).

We hypothesize that these approach/avoid responses should extend to brands associated with specific users. Thus, the automatic evaluations of other people should moderate the positive response toward a frequently encountered brand. Therefore, upon encountering certain out-group members, a negative evaluation should automatically be activated (Devine 1989; Hogg and Abrams 1993), which, in turn, will carry over toward the brand being used by that out-group member. This suggests that implicitly discerning the type of user of a brand may moderate the fluency effect arising from increased frequency of exposure. Winkielman et al. (2003) suggest the possibility that fluency effects may be attenuated when other relevant information is available and can be

utilized. This is consistent with the notion that exposure to the users of the brand provides additional information that can either boost the positive response to the brand when the group is perceived positively or lessen the positive response when the group is perceived negatively. In study 4, we examine whether associating the brand with users who are in-group or out-group members for the perceiver moderates the impact of repeated brand exposure.

Overview of Studies

A paradigm was developed to simulate the essence of an ICBE in the lab setting. It was important to capture the brief duration and lack of direct interaction in these encounters as well as to create a situation in which the brand did not become the focal point of the visual frame and thus would be processed without conscious awareness. We simulated ICBEs by briefly exposing participants to photos of people engaged in everyday situations (e.g., sitting on a bench, having lunch). As part of these everyday situations, a brand was located near the focal individual such that it appeared that the individual uses that brand. Thus, brief exposures to these photos are similar to brief exposures to people one sees in everyday situations. The brand we use in this research is a common and familiar brand—Dasani bottled water. However, fluency can be temporarily enhanced by situational exposure (Lee 2002), even for such a chronically fluent brand.

In study 1, we vary the frequency of exposure to photos that show people in everyday situations with Dasani. It is expected that increased exposure to the Dasani brand during ICBEs leads to increased choice of Dasani for those participants who are not aware of having been exposed to the Dasani brand.

In studies 2 and 3, we examine perceptual fluency as the underlying mechanism driving this effect. Perceptual fluency suggests that experiential information (i.e., ease of processing) arising from repeated exposure affects the choice of the brand. In study 2, we give participants the opportunity to attribute the generated fluency to another source. It is expected that the effects of frequency of exposure will be mitigated when participants can attribute fluency to another source. In study 3, we examine a limiting factor of perceptual fluency. Fazendeiro et al. (2007) propose that disfluency may occur as a result of saturation via excessive exposure, with such saturation resulting in a less positive response toward the stimulus. Thus, we predict that excessive exposure to the Dasani brand will result in disfluency and lead to a decrease in choice of Dasani. Although we believe that fluency underlies the frequency of exposure effect, we acknowledge that priming of Dasani via the exposures leads to increased accessibility of Dasani. We discuss the relationship between priming and fluency in the article's final section.

Another major goal of this research is to test whether the effects of frequency of exposure to a brand can be enhanced, attenuated, or possibly even reversed depending on the social context of that exposure, specifically, who is using the

FIGURE 1

EXAMPLES OF PHOTOS WITH AND WITHOUT DASANI (STUDIES 1–3) AND PHOTOS OF IN-GROUP AND OUT-GROUP USERS WITH DASANI (STUDY 4)



NOTE.—Color version available as an online enhancement.

brand. In studies 1–3, the type of user is purposively not discernible, and so the focus is on illustrating the baseline ICBE effect. In contrast, study 4 presents a situation in which the brand is associated with a particular type of user, either in-group or out-group members. Responses to the brand are expected to depend on general responses to the in-group or out-group, which, in turn, will depend, in part, on the observer's self-construal.

PRETEST

A pretest was conducted to determine whether Dasani differed from other water brands in terms of people's overall preference for and knowledge of the brand. Participants drawn from the same participant pool as those taking part in studies 1–3 (undergraduate students at the University of Maryland) rated seven different water brands on 9-point scales assessing liking, knowledge, and usage. These participants were drawn from a university campus where Pepsi products (e.g., Aquafina) are exclusively sold in campus stores and vending machines, so Dasani was not likely to be the dominant brand. The four brand options used in the main studies did not differ on liking; mean liking ranged from 6.7 to 7.3 ($F(3, 44) < 1.0$, NS). The four brands also did not differ on general knowledge of the brand ($F(3, 44) = 1.73$, NS). There was a marginally significant difference in terms of

the brand that was drunk most often ($F(3, 44) = 2.41$, $p = .08$), with the Deer Park and Aquafina brands consumed more regularly than the Dasani brand. These results suggest that any effects found would not be limited to the most well-known or liked brand.

STUDY 1

In this study, participants are exposed to photos of people in everyday situations, some with Dasani brand water, and then given a choice among four brands of bottled waters. The Dasani bottles in the photos are subtly displayed near the focal person (see fig. 1 for examples of the photos with and without the Dasani). Participants view 20 photos in total, and the number of photos with the Dasani is varied (i.e., zero, four, or 12 of the 20 photos). We predict that the percentage of participants selecting Dasani will increase with frequency of exposure to photos with Dasani but will do so only for those participants who are not aware of having been exposed to the brand. Participants who are explicitly aware of exposure to Dasani may correct and attenuate the effect of repeated exposure on brand choice.

Type of user is purposively ambiguous in this study. The gender and racial distributions of persons in the photos reflect the distributions in the general population, so the people pictured with and without the Dasani include people of both

genders and of various racial and ethnic groups. No other physical categorization cues were visible. As a result, no group distinctions between users and nonusers were evident, making a type of user classification unlikely.

Method

Participants. One hundred and twenty-six undergraduate students (65% female) at the University of Maryland participated in the study in exchange for course credit.

Materials. Participants viewed a series of 20 photos. The focal persons in the photos were engaged in various everyday activities (e.g., waiting for the bus, eating lunch). Frequency of exposure was manipulated by varying the number of photos that showed the Dasani water with the focal person (i.e., zero, four, or 12). The remaining photos were filler photos that had a focal person but that did not display the Dasani brand. Adobe Photoshop 7.0 was utilized to create some of the filler photos, which involved editing out the Dasani bottle.

Procedure. Upon arrival at the lab, participants were seated at a computer. They were instructed that they would be shown 20 photos for several seconds each, after which they would be asked about the photos. Participants were specifically instructed to focus on the facial expressions of the people depicted in the photos, thus reducing the likelihood that they would consciously notice and focus on the Dasani bottle. In addition to the three levels of frequency exposure, duration of exposure was manipulated (i.e., 1, 2, or 3 seconds). Duration did not have an independent effect on choice of Dasani nor did it interact with frequency of exposure, so it is not discussed further. After viewing the photos, participants were told that as a thank you for their participation they would receive a bottle of water to take with them at the end of the study. They were then presented with the brand logos for four options: Dasani, Aquafina, Deer Park, and Poland Spring. The four brand logos were displayed simultaneously in a row across the screen in one of four possible orderings of the logos, so that each brand had an equal chance of being the first brand in the row on the screen. Participants then clicked on a radio button below the logo corresponding to the brand of water they wanted to receive.

Participants then responded to questions assessing their awareness of the brand in the photos. Awareness was assessed using a recall and a recognition task. In the recall task, participants were asked if they noticed any brand name products in any of the photos and, if so, to list which brands they noticed. In the recognition task, participants were presented with each of the four water brand logos on separate screens and in random order and asked if that brand of water appeared in any of the photos. Finally, participants were asked to indicate how much they liked each of the bottled water options on a 9-point scale.

Results

Brand Awareness. Using the recall measure, participants who specifically reported seeing Dasani in the photos were coded as aware. We expected that participants in the 12-exposure condition would be more likely to notice the Dasani than participants in the four-exposure condition simply because the probability of noticing the brand increases with the number of times the brand was potentially visible. This was indeed the case. A total of 27.1% noticed the Dasani in the 12-exposure condition, whereas only 11.9% noticed the Dasani in the four-exposure condition ($F(1, 125) = 10.65$, $p < .002$). Using the recognition measure, participants were coded as aware if they responded yes to the question asking if the Dasani brand appeared in any of the photos and no to the questions asking if any of the other three water brands appeared in any of the photos. Janiszewski (1993) reports recognition rates for pictorial stimuli that ranged from 14.3% to 53.3%. The recognition rates in this study were 7.1% and 27.1% in the four- and 12-exposure conditions, respectively ($F(1, 125) = 13.39$, $p = .0004$). Below we report results using the recall measure to screen for participants who were unaware of the brand. Therefore, 108 participants were used in the analysis (36, 37, and 35 in the zero-, four-, and 12-exposure conditions, respectively). However, we also analyzed the data using recognition for screening, and the results were almost identical. We focus only on the results for the unaware participants below as there are too few participants in the aware group for meaningful analyses.

Choice of Bottled Water. A logistic regression was used to analyze the data, with the dependent variable coded as 1 = chose Dasani or 0 = did not choose Dasani. Number of exposures was treated as a continuous variable in order to test for a linear trend in exposure accounting for unequal intervals (i.e., zero, four, and 12 exposures).

As predicted, there was a significant effect of frequency of exposure (for participants not aware of the Dasani). In the zero-exposure control condition, 17.1% of the participants selected Dasani, as compared to 21.6% in the four-exposure and 40.0% in the 12-exposure conditions. The linear trend analysis, accounting for unequal intervals, indicated a significant increase in the percentage choosing Dasani with increased frequency of exposure ($\chi^2(1) = 5.03$, $p = .02$).

Participants were asked to indicate how much they liked Dasani on a 9-point scale. Liking for Dasani did not differ across conditions (5.7, 5.1, and 6.2 in the zero-, four-, and 12-exposure conditions, respectively). However, liking for Dasani was correlated with choice of Dasani, and this correlation became stronger as the number of exposures increased ($r = 0.40$, $p < .01$; $r = 0.57$, $p < .01$; and $r = 0.75$, $p < .0001$ in the zero-, four-, and 12-exposure conditions, respectively).

Discussion

The results indicate that increased frequency of incidental exposure to other people with Dasani had a positive effect

on own choice of Dasani for participants unaware of exposure to the brand. We obtained these data in an environment in which Dasani was not the dominant brand. One might wonder, however, whether the current results generalize to situations where the brand in question is in fact the market leader. To examine this question, we replicated study 1 at Duke University, where Dasani was the dominant brand. There was a significant effect of frequency of exposure ($\chi^2(1) = 7.51, p < .01$), with 31%, 46%, and 62% choosing Dasani in the zero-, four-, and 12-exposure conditions, respectively. Thus, regardless of whether the brand is the dominant brand in its product category or not, frequency of exposure leads to higher likelihood of choosing that brand. This study provides evidence for the phenomenon of interest but does not provide evidence for the process underlying the effect. This is addressed in studies 2 and 3.

STUDIES 2 AND 3

We propose that repeated exposure increases perceptual fluency and, in turn, increases positive response toward the repeated stimulus (in this case, Dasani). That is, repeated exposure to the brand increases the ease of processing the Dasani brand name and logo in usage situations. When participants are then given a choice among water brands, the activation of the Dasani construct and the experienced fluency increases the likelihood that Dasani will be selected. We test whether fluency underlies our effects using two distinct paradigms. First, we utilize a misattribution paradigm to show that choice of Dasani does not increase with frequency of exposure when people have the opportunity to attribute fluency to a source other than repeated exposure (Fang et al. 2007; Winkielman et al. 2003). We use a 3 (frequency of exposure: 0, 4, 12) \times 2 (misattribution: yes, no) design to test this prediction.

Second, we show that too many exposures can backfire and lead to disfluency. Huber and O'Reilly (2003) argue that initial processing of a prime boosts fluency by preactivating the stimulus' representation in memory but that extensive processing can saturate the prime's representation and result in sluggish reprocessing of the stimulus at the time of consideration. Saturation can lead to disfluency, which may eliminate or reverse the positive effect of repetition. This may explain why mere exposure effects tend to lessen at greater levels of repetition (Fazendeiro et al. 2007). Thus, we expect that excessive exposure to the Dasani brand should result in disfluency, which will be reflected in a decrease in likelihood of choosing the Dasani brand. We use a 3 (frequency of exposure: 0, 4, 12) \times 2 (preexposure: yes, no) design to test this prediction.

The procedure for both studies was similar to that of study 1. Participants were exposed to 20 photos of people in everyday situations, with the number of photos with the Dasani brand manipulated; they were then given a choice among four brands of bottled water. As in study 1, type of user was purposefully ambiguous regarding in-group versus out-group status. Study 1 results indicated that duration of ex-

posure did not impact choice of Dasani, so in these studies the photos were presented for two seconds each.

Study 2

Method. Two hundred and seventy-one undergraduate students (46% female) at the University of Maryland participated in the study in exchange for course credit. The procedure for this study differed from that of study 1 only in the playing of background music and the misattribution instructions. When participants arrived they were instructed to put on a set of headphones. Background music was played continuously throughout the experiment via the headphones. After the photos were presented, participants in the misattribution condition were told that the background music might make it easier to process the information that they were exposed to, which might give them a sense of fluency. They were told to ignore this sense of fluency when making subsequent judgments. Participants in the no misattribution condition were not told anything about the music.

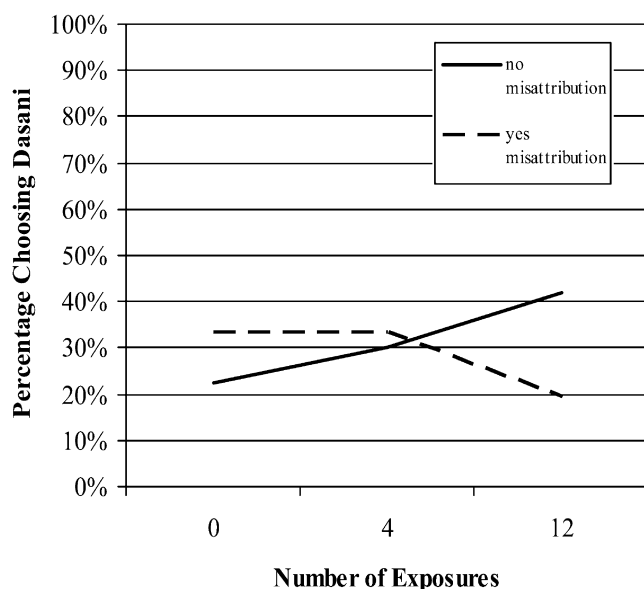
Results. Using the recall measure, 12.8% and 14.1% of participants in the four- and 12-exposure groups, respectively, were coded as being aware of the Dasani in the photos. The percentage of participants recalling Dasani in the 12-exposure condition was lower than that in study 1, perhaps because participants were distracted by the background music and hence were even less likely to consciously notice or attend to the Dasani bottle. Only the remaining 246 participants were used in the analysis (85, 82, and 79 in the zero-, four-, and 12-exposure conditions, respectively).

A logistic regression was used to analyze the data with frequency of exposure treated as a continuous variable and misattribution treated as a two-level categorical variable. As predicted, there was a significant interaction of frequency of exposure and misattribution on choice of Dasani ($\chi^2(1) = 5.42, p = .02$; see fig. 2), indicating that the frequency of exposure effect differed across the misattribution conditions. The percentage choosing Dasani in the no misattribution condition increased with frequency of exposure ($\chi^2(1) = 3.92, p < .05$) from 22.5% to 30.2% to 41.9%. In contrast, choice of Dasani did not increase with frequency of exposure in the misattribution condition ($\chi^2(1) = 2.04, p = .15$). An additional condition was run in which participants were told that the background music might affect how they felt about things and that they should ignore these feelings when making subsequent judgments. The results for this condition were similar to those of the fluency misattribution case, which is consistent with the Fang et al. (2007) results.

Liking for Dasani did not differ across frequency of exposure conditions, but liking was correlated with choice of Dasani. The strength of this correlation increased with exposure to Dasani relative to the control group in the no misattribution condition ($r_{0\text{-exp}} = 0.47, r_{4\text{-exp}} = 0.66, r_{12\text{-exp}} = .54$), but it decreased in the misattribution condition ($r_{0\text{-exp}} = 0.58, r_{4\text{-exp}} = 0.51, r_{12\text{-exp}} = .33$).

FIGURE 2

STUDY 2: PERCENTAGE CHOOSING DASANI BY FREQUENCY OF EXPOSURE AND MISATTRIBUTION



Study 3

Method. One hundred and ninety-nine undergraduate students (56% female) at the University of Maryland participated in the study in exchange for course credit. The procedure for this study differed from that of study 1 only in the preexposure task and instructions. Prior to viewing the photos, participants in the preexposure condition were told that they would participate in a visual acuity task. They were informed that an image would be flashed on the computer screen and that they needed to indicate if the image was flashed on the left- or right-hand side of the screen by pressing one of two designated keyboard keys. The actual responses regarding the position of the image were not of interest and thus were not recorded. This procedure was used so that the Dasani brand logo would be subliminally presented in the participant's peripheral field of vision. Participants in the preexposure condition were subliminally exposed to the Dasani brand logo 20 times, with the logo shown for 40 milliseconds. The logo was preceded by a mask (i.e., a colorful pattern) shown for 40 milliseconds and followed by a mask (i.e., a different colorful pattern) shown for 80 milliseconds. There was a 2-second interval between exposures, during which three asterisks were displayed on the screen. After this task, these participants proceeded to the main part of the study. Participants in the no preexposure condition were not subliminally exposed to the Dasani brand logo; they only completed the main part of the study.

Results. Using the recall measure, 16.7% and 36.8% of participants in the four- and 12-exposure groups, respectively, were coded as being aware of the Dasani. This per-

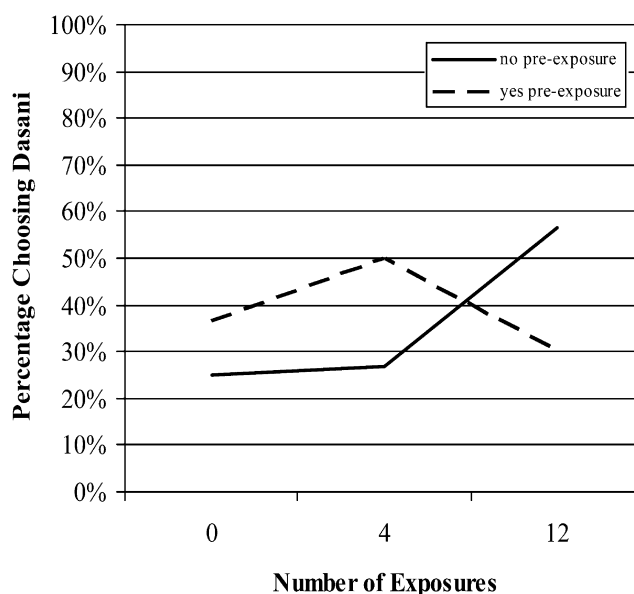
centage did not differ across the preexposure and no preexposure conditions. Additionally, a small percentage of participants (6.2%) noticed the Dasani logo during the subliminal exposure task. These participants were deleted from the analysis. Only the remaining 157 participants were used in the analysis (62, 52, and 43 in the zero-, four-, and 12-exposure conditions, respectively).

A logistic regression was used to analyze the data with frequency of exposure treated as a continuous variable and preexposure treated as a two-level categorical variable. There was a significant main effect of preexposure ($\chi^2(1) = 3.86, p = .05$), indicating that having the preexposures boosted choice of Dasani, but this effect was moderated by frequency of exposure. As predicted, there was a significant interaction of frequency of exposure and preexposure on choice of Dasani ($\chi^2(1) = 4.52, p = .03$; see fig. 3), indicating that the frequency of exposure effect differed across the preexposure conditions. The percentage choosing Dasani in the no preexposure condition increased with frequency of exposure ($\chi^2(1) = 6.00, p < .01$) from 25.0% to 26.9% to 56.5%. In contrast, choice of Dasani increased but then decreased with frequency of exposure in the preexposure condition. Preexposure initially boosted choice of Dasani in the zero- and four-exposure conditions, with 36.7% and 50.0% percent of the participants selecting Dasani, respectively. However, choice of Dasani decreased in the 12-exposure condition to 30.0%. The percentage choosing Dasani in the 12-exposure condition differed, although marginally, by preexposure (30.0% in the preexposure vs. 56.5% in the no preexposure condition; $\chi^2(1) = 3.05, p = .08$).

There were no significant differences in liking for Dasani

FIGURE 3

STUDY 3: PERCENTAGE CHOOSING DASANI BY FREQUENCY OF EXPOSURE AND PREEXPOSURE



across conditions, although the pattern for liking mirrored that for choice of Dasani. As in the other studies, liking for Dasani was correlated with choice of Dasani and the strength of this relationship increased for 12 exposures in the no pre-exposure condition ($r_{0\text{-exp}} = 0.33$, $r_{4\text{-exp}} = 0.33$, $r_{12\text{-exp}} = .56$) but decreased in the preexposure condition ($r_{0\text{-exp}} = 0.65$, $r_{4\text{-exp}} = 0.46$, $r_{12\text{-exp}} = .42$).

Discussion

The results of these two studies provide evidence for fluency as a process underlying the frequency of exposure effect. In study 2, participants corrected for the effects of fluency when they were informed that the music playing in the background could affect how easily things came to mind and were told to ignore that feeling when making subsequent judgments. In study 3, subliminally presented preexposures initially boosted but then decreased choice of Dasani. As demonstrated in previous research (Huber and O'Reilly 2003), there seems to be a limit to how much exposure can be provided before fluency is experienced less positively or even negatively.

In studies 1–3, we focused on examining the frequency of exposure effect. However, an important issue is whether the social context in which the brand is observed matters. We believe that it does; specifically, we argue that differences in the types of users associated with the brand via repeated exposure will moderate the frequency of exposure effect. Recent theorizing by Winkielman et al. (2003) suggests that the impact of fluency can be attenuated when additional diagnostic information is available. We propose that the type of brand user provides such additional diagnostic information and will moderate the effect of repeated exposure on choice. We test this prediction in study 4.

STUDY 4

As noted earlier, we propose that exposure to a particular type of user should automatically activate the evaluative responses the perceiver has to that type of user (Fazio et al. 1986), leading to an automatic tendency to approach a positively evaluated user and avoid a negatively evaluated user. This approach/avoid response may then extend to the brands associated with the user. We examine this effect by focusing on brand users who are members of the perceiver's in-group or out-group. Thus, how a perceiver responds to the brand exposures requires an understanding of how people respond to in-group and out-group members. This is a more complex process than simply a positive response to in-group members and a negative response to out-group members, with responses also depending on the perceiver's self-construal (Brewer and Yuki 2007; Maddux and Brewer 2005).

Self-construal concerns what people "believe about the relationship between the self and *others* and, especially, the degree to which they see themselves as *separate* from others or as *connected* with others" (Markus and Kitayama 1991, 226; emphasis in original). An independent view of self emphasizes separateness, internal attributes, and uniqueness

of individuals, whereas an interdependent view of self emphasizes connectedness, social context, and relationships (Singelis 1994). Markus and Kitayama (1991) suggest that psychological processes that explicitly or implicitly implicate the self, such as response to in-group and out-group members, vary by self-construal. As a consequence, self-construal plays an important role in how people respond to objects associated with those group members (Escalas and Bettman 2005).

More specifically, Brewer and Yuki (2007) propose that people high on independence and low on interdependence (from here on referred to as independents) focus on the collective component of self-identity, which is characterized by depersonalized relationships and a focus on membership in symbolic groups. When the collective self is activated, the most salient features of the self-concept become those that are shared with other members of the in-group, leading to self-evaluation in terms of group prototypes and inter-group comparisons. For independents, therefore, in-group and out-group distinctions are salient and they drive behavior. In particular, such individuals are more likely to exhibit an in-group bias, as evidenced by responding positively toward in-group members and/or responding negatively toward out-group members.

By contrast, people high on interdependence and low on independence (from here on referred to as interdependents) focus on the relational component of self-identity. Brewer and Yuki (2007) suggest that the relational self derives from connections and role relationships with significant others. Thus, a relational focus leads to self-evaluation on the basis of roles and relationships with specific others. Broad in-group and out-group distinctions may not be as relevant for self-definition for these individuals. Instead, self-definition comes from close personal relationships. These relationships are only fulfilling to the extent that they are marked by positive caring, stability, frequent contact, and persistence into the future (Baumeister and Leary 1995). For people who value close personal relationships, in-group distinctions based on large, impersonal groups like those used in the current study may not be valued. This suggests that interdependents may not respond positively to in-group members to whom they have solely a group-level connection rather than a personal connection.

In sum, we expect to find a difference in participants' responses to in-group brand users as a function of self-construal. These user-brand associations offer additional information that may add to or detract from the impact of fluency from repeated exposure. When the brand is used by in-group members, we expect that independents will exhibit the frequency of exposure effect and thus be more likely to choose Dasani with greater frequency of exposure. However, for interdependents, we expect that the increased exposure to in-group users will attenuate the frequency of exposure effect. The impact of exposure to in-group members may be particularly strong as these participants might resist non-personal relationships based only upon affiliation with a large group.

When the brand is used by out-group members, we expect all individuals, irrespective of self-construal, to respond negatively toward the out-group. This negative response will weaken the positive frequency of exposure effect. It is not clear, however, how strong this negative response will be, and so we make no formal predictions regarding the likelihood of choosing Dasani as frequency of exposure increases when the out-group is shown with the brand.

The moderating effects of group membership and self-construal on fluency are expected to be the result of an automatic process. With greater frequency of exposure, participants will implicitly arrive at the association between brand and type of user and an evaluation of that type of user will be automatically activated. Because we only consider participants who are unaware of the Dasani in the photos, participants cannot be consciously aware of the relationship between user and brand. Their lack of awareness of the brand suggests that they are not aware of identifying or utilizing the brand and user association information in their choice. Even if participants are aware that the person is an in-group or out-group member, the process of responding positively or negatively toward those group members is not likely to be a deliberate process but one that operates automatically as a result of having been developed and acted upon over time.

Method

Participants. One hundred and sixty-three students (64% female) at Duke University participated in the study in exchange for a cash payment.

In-Group and Out-Group Manipulation. It was critical that the in-group and out-group be relevant to participants. In addition, it was necessary to use groups that could be identified visually. A pretest was conducted to assess students' membership in various voluntary and involuntary demographic groups and the importance to their identity of being members of such groups. Respondents indicated that school affiliation (i.e., being a student at their university) was an important element of their identity ($M = 5.4$ on a 7-point scale). Thus, we manipulated whether the people with the Dasani in the photos were affiliated with the participants' university (i.e., in-group) or a local rival university (i.e., out-group).

Materials. Again participants viewed 20 photos. School affiliation was made evident for the focal person in 12 of the 20 photos. In the in-group (out-group) condition, the focal person was wearing a cap displaying the participants' university logo (local rival university logo). The focal person in the other eight photos did not display a school affiliation. The Dasani bottled water was placed next to the focal individual wearing the school cap in zero, four, or 12 of those photos. In the four- and 12-exposure conditions, the Dasani bottle always appeared with a focal person wearing a school cap, so there was a clear pattern characterizing users and nonusers of Dasani in the photos. Given the greater repetition, the

association between brand and user is stronger in the 12-exposure than in the four-exposure condition. See figure 1 for an example of the group membership manipulation.

Procedure. We utilized a three-stage process to collect the data. Participants were told that they were participating in three unrelated studies that had been combined into one study session. In stage 1, we obtained several individual difference variables, including self-construal, which was measured using Singelis's (1994) independent and interdependent self-construal scales. In stage 2, participants completed a 10-minute filler task included to decrease any potential awareness of the connection between collection of the individual difference measures and the photo task. This filler task involved rating and choosing between different sets of greeting cards. In stage 3, participants completed the photo task. In addition to the regular measures, participants were asked if they "noticed anything about the clothing or apparel of the people in the photos" to determine whether or not they were aware of the school affiliation.

Results

Brand Awareness. Fifteen of the 163 participants recalled seeing the Dasani in the photos. Having the focal persons in the photos wear caps with the school logos captured attention; compared to study 1, fewer participants were aware of having seen the brand (10.0% and 16.1% in the four- and 12-exposure conditions, respectively). These percentages are similar to those of study 2, where the music seemed to serve to distract focal attention. Only data from the 148 participants who had not noticed the Dasani were used in the analysis (51, 45, and 52 in the zero-, four-, and 12-exposure conditions, respectively).

Assessment of Group Membership. Approximately 71% of participants indicated noticing the university logo. Our main results did not differ by whether participants indicated noticing the school logo or not, so this variable is not discussed further. Note that, although participants were aware of the group membership of the focal persons in the photos, they were not aware of the brand and hence were not aware of the co-occurrence of the brand with the type of user.

Self-Construal Measure. We calculated a self-construal score that takes into account both the interdependent and independent dimensions of self-construal. Both scales exhibited an acceptable level of reliability (Cronbach's $\alpha = .74$ and $.68$ for the interdependence and independence scales, respectively) and were not correlated ($r = .12$); consistent with Singelis (1994). Construal was calculated as construal level equals z -score of interdependence scale score minus z -score of independence scale score. Large positive values indicate high interdependence and low independence (i.e., interdependents), large negative values indicate low interdependence and high independence (i.e., independents), and small positive or small negative values indicate being high or low on both dimensions.

Choice of Bottled Water. A logistic regression was used for the analysis. The model included number of exposures, type of user, self-construal, and all of the interactions. Number of exposures and construal were treated as continuous variables.

The results indicated a main effect of construal ($\chi^2(1) = 4.78, p = .03$), with interdependents more likely to choose Dasani. Of more importance, there was a three-way interaction between number of exposures, group membership, and construal ($\chi^2(1) = 4.29, p = .04$). Figure 4 displays the percentage of participants choosing Dasani as a function of the independent variables using the spotlight method (Fitzsimons 2008; Irwin and McClelland 2001), which is a technique that helps illuminate significant interactions at different levels of the continuous variables. We use it to illustrate the relationships among frequency of exposure and type of user at different levels of construal. The percentage choosing Dasani was calculated by taking the estimated logistic model equation and inserting the values for frequency of exposure (i.e., 0, 4, or 12), type of group (i.e., 0 = out-group, 1 = in-group), and the value of construal at one standard deviation below the mean (4A), at the mean (4B), and at one standard deviation above the mean (4C).

Discussion

The results indicate that the frequency of exposure effect was attenuated at all levels of construal for the out-group condition. The percentage choosing Dasani when users were out-group members did not differ across exposure level. This is consistent with our prediction that all participants would respond negatively toward out-group members using the brand, thereby attenuating the positive impact of frequency of exposure.

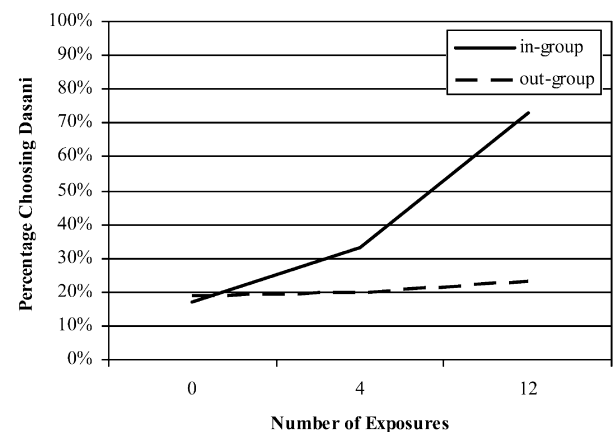
There was, however, an effect of frequency of exposure when users belonged to the in-group, but this effect was dependent on construal level. As expected, the percentage choosing Dasani increased with frequency of exposure to in-group users for independents. Compared to the effect of frequency of exposure in studies 1–3, it appears that presenting the brand with the in-group members enhanced the impact of frequency of exposure for this group of participants. This result is consistent with our construal theory argument, suggesting that there was a positive in-group bias for independents. In contrast, the percentage choosing Dasani decreased with frequency of exposure to in-group users for interdependents, suggesting a possible resistance to items associated with large impersonal groups.

This pattern of results for in-group members was replicated in a follow-up study. Limiting the study to only the in-group, we first asked participants to list ways that they were similar to or dissimilar from other students at their university. We included this manipulation to examine whether asking participants to identify similarities would simulate the feeling of close relationships that interdependents desire. There was a significant interaction between construal and number of exposures ($\chi^2(1) = 5.53, p =$

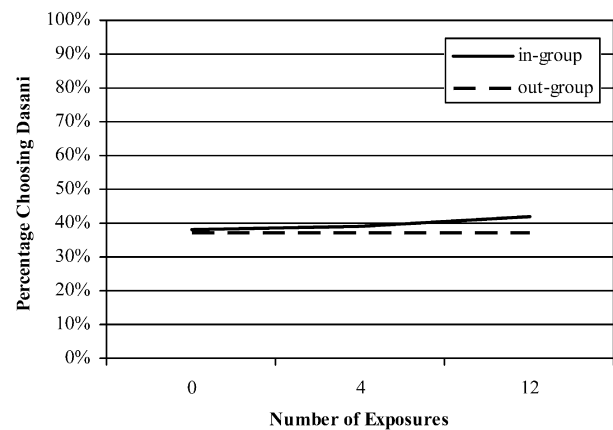
FIGURE 4

STUDY 4: PERCENTAGE CHOOSING DASANI BY NUMBER OF EXPOSURES, GROUP MEMBERSHIP, AND CONSTRUAL LEVEL

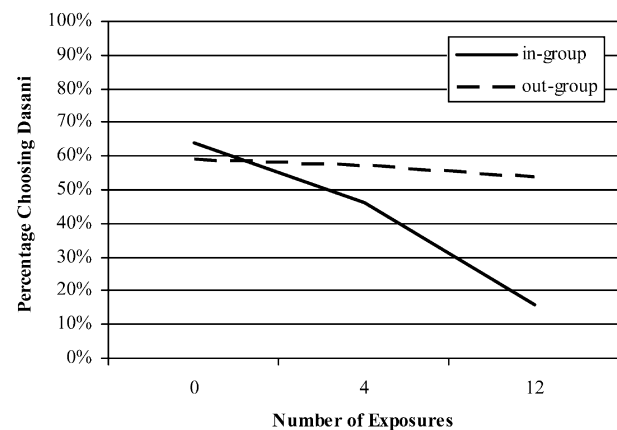
A. Construal Level at One Standard Deviation below the Mean (Independents)



B. Construal Level at the Mean



C. Construal Level at One Standard Deviation above the Mean (Interdependents)



.02), replicating the study 4 results. Specifically, the frequency of exposure effect was evident for independents, but as interdependence increased and independence decreased, people tended to choose other brands with increased exposure to Dasani. There was no difference across participants listing similarities or dissimilarities with the in-group, which suggests that asking people to identify similarities with others in the in-group did not necessarily create connectedness for interdependent participants.

GENERAL DISCUSSION

Summary and Contributions

People's day-to-day activities regularly result in fleeting exposure to people consuming or displaying their preferred brands. Because they are commonplace occurrences, information gleaned from these brief exposures may have a strong impact on an observer's choice of brand. Results across three studies indicate that increased frequency of exposure to others and their brands increases choice of that brand when those others are not associated with any particular group. When a type of user is discernible, however, this relationship is moderated by perceivers' automatic responses to that group. Importantly, these results hold for those not aware of having been exposed to the Dasani brand, implying that both encoding of frequency information and activation of perceivers' concepts about the group are in operation and that they affect choice without conscious awareness on the part of the observer.

The results of studies 2 and 3 offer evidence that the frequency of exposure effect is driven by experienced fluency. Study 2 shows that, if the experienced fluency generated by repeated exposure can be attributed to another source, then the effect will be attenuated. Study 3 suggests that too much fluency can backfire, which is consistent with the saturation model proposed by Fazendeiro et al. (2007) and Huber and O'Reilly (2003).

Our results go beyond an interesting application of mere exposure by showing that the context in which repeated exposure occurs matters. Most of the stimuli that people encounter are not isolated—they exist in a context. When consumers repeatedly see members of social groups such as teens or athletes with a given brand, the positive or negative response to those types of users has a moderating impact on the repeated exposure to the brand. Our findings are in line with the assertions of Winkielman et al. (2003) that effects of fluency can be attenuated when other relevant information is available and utilized. In this case, the type of user is the additional information.

More specifically, the study 4 results suggest a more nuanced view of how people respond to in-group and out-group members, particularly as instantiated by membership in a large impersonal group. Such groups offer independents the opportunity to express their social identity through relationships with others that are inherently superficial and based on loose ties. Opting for the brand used by such an impersonal in-group may allow these individuals to fulfill

their need to belong but also allow for separateness from others (Brewer 1991). By contrast, interdependents do not find that these groups offer meaningful ties to others. The definition of psychological closeness seems to vary with construal when applied to large impersonal affiliation groups. Thus, the type of closeness engendered by these large impersonal groups is not the closeness desired by interdependents. Our results suggest that these individuals may actually resist the brands that come to be associated with these large impersonal groups.

The unique contribution of study 4 is that it shows that additional information in the form of automatic responses to different types of users can alter the fluency experience; it may bolster it as in the case of independents viewing in-group members with the brand, dampen it as in the case of people (at all construal levels) viewing out-group members with the brand, or overpower it as in the case of interdependents viewing in-group members with the brand. Importantly, the participants in study 4 were not aware of the brand and hence could not be aware of its association with the in-group or out-group, so conscious correction was not possible.

The Relationship between Fluency and Liking Responses

Prior mere exposure research suggests that liking for Dasani should increase with frequency of exposure. While we found a positive increasing correlation between liking and choice of Dasani with increased exposure, reported liking itself did not differ across conditions. On the surface, this result seems inconsistent with a fluency account. Additionally, evidence in Simonson, Kramer, and Young (2004) suggests that effects on preference ratings are usually larger than effects on choice. This result also appears inconsistent with our findings on the preference measure.

So, how do we reconcile our results with these prior findings? Most mere exposure research utilized stimuli with no preexisting preferences (e.g., Chinese ideographs, polygons). In contrast, Dasani is a real brand that is well known by our participants, and our pretest indicates that participants have generally positive preexisting attitudes toward Dasani as well as the other water brands. Fluency may not translate into greater liking when there are positive preexisting attitudes toward the stimuli, perhaps because there is a ceiling beyond which preferences cannot be increased or because stable preferences may be difficult to move. Thus, fluency can affect brand choice, as we show, but not liking.

Research by Alter, Oppenheimer, and Epley (2007) on the relationship between fluency and System 1 versus System 2 processing offers another possible explanation. They propose that a feeling of fluency leads to intuitive and effortless System 1 processing. System 1 processing may lead to a reliance on one's prior existing attitudes rather than to engagement in elaborative processing. So, when asked to choose a water option, the fluency generated by increased frequency of exposure to Dasani may lead to tapping a positive preexisting attitude for Dasani without generating

a corresponding increase in liking. Thus, we could simultaneously observe no mean differences in liking but increased choice of Dasani and increased attitude-choice correlations as frequency of exposure (and hence fluency) increases. Further research would be needed to more completely examine this possibility.

The Relationship between Fluency and Priming

Priming makes a construct temporarily more accessible. Repeated priming, as with Dasani in our ICBEs, can then lead an individual to experience increased fluency regarding the primed construct. Thus, in our studies priming and fluency go hand in hand, with perceptions of fluency being the mechanism by which priming leads to increased choice. In particular, we believe that studies 2 and 3 demonstrate that the experience of fluency, not merely accessibility, is an important determinant of our effects.

Future Research

Future research can help refine the conceptual and practical understanding of these findings, including important boundary conditions. For example, our research utilized only one brand, whereas in the real world people do not just encounter one brand. They encounter numerous brands, often in short periods of time. One might even encounter the same person using competing brands. So, one important issue is the effect of competing brand clutter. If a competing brand were shown in some of the filler photos, would we still get a frequency of exposure effect on choice of Dasani, or would there be interference from the competing brand?

Some readers may wonder if processing style differences associated with different self-construals provide an alternative explanation for our study 4 results. Independents are more likely to be analytic processors, whereas interdependents are more likely to be holistic processors (Masuda and Nisbett 2001; Nisbett 2003). These different processing styles may affect the perceiver's ability to make the association between the brand and user type and thereby influence response to that type of user and brand. Although processing style differences are not able to explain all of our results (e.g., the enhancement of the effect for independents exposed to in-groups), it suggests that the metacognitive experiences occurring when the type of user and brand association is being processed is an important issue. Additional research is needed to more fully understand the metacognitive experiences that occur during processing of ICBEs.

Finally, it is important to understand dynamic ICBEs. Our photographs present a static picture of an ICBE. However, people's everyday encounters are dynamic, not static, and people also observe brand-users' verbal and/or nonverbal behaviors. Work on thin slices (Ambady, Krabbenhoft, and Hogan 2006) shows that even minimal dynamic information can influence judgments of a target. This suggests that observing a brand-user in dynamic situations may allow the perceiver to go beyond merely discerning the type of user to forming judgments of personality traits or other user char-

acteristics. Examining how this potentially rich array of information gleaned from ICBEs subsequently affects response toward the brand presents an exciting opportunity for future research.

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